AD_____

AWARD NUMBER DAMD17-94-J-4294

TITLE: University of Kansas Cancer Center Breast Tissue and Serum Repository Core Facility

PRINCIPAL INVESTIGATOR: Jonathan J. Li, Ph.D.

CONTRACTING ORGANIZATION: University of Kansas Medical Center
Kansas City, Kansas 66160-7700

REPORT DATE: October 1998

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

19990820039

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	October 1998	Annual (23 Sep 97 - 22 Sep 98)

4. TITLE AND SUBTITLE
University of Kansas Cancer Center Breast Tissue and Serum Repository Core Facility

5. FUNDING NUMBERS
DAMD17-94-J-4294

6. AUTHOR(S)
Jonathan J. Li, Ph.D.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
University of Kansas Medical Center
Kansas City, Kansas 66160-7700

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

19990820 039

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

The Division of Etiology and Prevention of Hormonal Cancers, Kansas Cancer Institute (KCI), has further developed in the fourth year of U.S. Army Medical Research and Development support a Breast Tissue and Serum Repository Core Facility (BTSR) to facilitate and foster breast cancer-related research at KCI and other research institutions in the Southern Plains States. To date, the BTSR has collected multiple malignant, nonmalignant, and normal breast tissue specimens, as well as serum, lymphocyte, and plasma specimens from consenting surgical patients. The collection and cataloging of endometrial and ovarian malignant and nonmalignant tissues and blood progresses. We have received approval for collection of human tumor specimens from prostate, colon, thyroid, pancreas, lung, liver, and testicular cancers and corresponding normal tissues, serum, and lymphocyte samples. For each patient specimen, whether blood or tissue, a personal health history form has been completed. In addition, physician records of each patient are available if the information contained therein is needed by investigators. Patient confidentiality is strictly maintained, and patients' identities are not available to users of the BTSR Core Facility. A committee, comprising clinical and basic science faculty, reviews proposals for basic science and clinical studies.

14. SUBJECT TERMS	15. NUMBER OF PAGES
Breast Cancer	21
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

FOREWORD

Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the U.S. Army.

____ Where copyrighted material is quoted, permission has been obtained to use such material.

____ Where material from documents designated for limited distribution is quoted, permission has been obtained to use the material.

____ Citations of commercial organizations and trade names in this report do not constitute an official Department of Army endorsement or approval of the products or services of these organizations.

____ In conducting research using animals, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and use of Laboratory Animals of the Institute of Laboratory Resources, national Research Council (NIH Publication No. 86-23, Revised 1985).

____ For the protection of human subjects, the investigator(s) adhered to policies of applicable Federal Law 45 CFR 46.

____ In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

____ In the conduct of research utilizing recombinant DNA, the investigator(s) adhered to the NIH Guidelines for Research Involving Recombinant DNA Molecules.

__√__ In the conduct of research involving hazardous organisms, the investigator(s) adhered to the CDC-NIH Guide for Biosafety in Microbiological and Biomedical Laboratories.

PI - Signature

10/6/98

Date

TABLE OF CONTENTS

INTRODUCTION

The cause(s) of breast cancer and the means to predict who will develop it are currently not well understood. Understanding of either or both is an essential step to successful prevention of this prevalent disease in the future. Similarly, there is a paucity of knowledge related to early detection of breast cancer, because screening procedures, while improving, do not allow detection of breast cancer at the earliest and most curable stages. The development of the BTSR Core Facility at the KCI-KUMC is an important step to address these issues at this institution.

Development of the BTSR is highly relevant to expansion and augmentation of breast cancer research, including clinically-related and basic, at the Kansas Cancer Institute (KCI) and University of Kansas Medical Center (KUMC). The BTSR's purpose is to facilitate investigator-initiated research to perform correlation studies on the incidence of possible premalignant and malignant breast lesions with genetic and variable biomarkers (e.g., receptors, hormones, cellular proteins, protooncogenes, and tumor suppressor genes, etc.); and to assess the presence of potential carcinogens.

A focus of the Division of Etiology and Prevention of Hormonal Cancers (DEPHC) is to assist, complement, and expand existing, ongoing programs and to develop new programs in molecular biology and molecular cytogenetics in breast cancer research at KCI. A central emphasis of this Division is that hormones, particularly estrogens and progestin, play a critical role in breast tumor causation, progression, and dependency. Hormonal involvement in breast cancer etiology at the cellular and molecular level is not well understood and requires elucidation.

BODY

I. Background

The KCI-BTSR has been operational for 41 months. Dr. Jonathan J. Li continues as Director, however several changes in personnel have taken place. From December 28, 1997 to March 16, 1998, Ms. Neona Calovich replaced Ms. Julianne Heaston as secretary. Ms. Stephanie Parks was hired part-time on January 25, 1998 to assist the Biologist II converting the data base from FOX PRO to ACCESS. After March 16, 1998, Ms. Parks replaced Ms. Calovich as secretary. From April 5, 1998 through April 18, 1998, Dr. Dezhong Joshua Liao was retained as a consulting Pathologist. At the present time, Ms. Jodi Ballenger is the Biologist II, Ms. Stephanie Parks is the secretary, and Dr. Sara Antonia Li was named Associate Director effective September 23, 1998.

II. Experimental Methods

Tissue Samples

Tissue samples for the KCI-BTSR are acquired from patients who have breast biopsies, lumpectomies, mastectomies, or breast reduction surgery, and also from women who undergo hysterectomy and/or oophorectomy for malignant and nonmalignant conditions. Ms. Jodi Ballanger, the BTSR biologist, receives the daily surgical schedule for all breast surgeries and is present in the Surgical Pathology Laboratory during the processing of the breast specimens. These are handled in a timely fashion in order to preserve the tissues appropriately. The breast tissue, normal, abnormal, and neoplastic, is placed on a frozen cutting board provided by the BTSR. The breast tissue specimens are delivered to the Surgical Pathology Laboratory within 10 min. A certified pathologist immediately evaluates the tumor, and a frozen section is prepared for diagnosis. The pathologist then cuts tumor/normal tissue specimens for the BTSR biologist when sufficient amount of sample is available.

When the amount of tissue is adequate, one portion is allocated for frozen sections. Tissue samples destined for frozen section are covered with tissue-embedding medium in a cryomold, then placed in an airtight polypropylene container, labeled with a proper bar-code label (specimen-specific identification number--please see below), and snap-frozen immediately in an N_2 container before storage in the BTSR freezer. The remaining tissue sample is similarly labeled and snap-frozen in a polypropylene container.

Each specimen is assigned a unique six-digit specimen-specific identification number, which is assigned sequentially. The same bar-code number is used to identify each individual patient biopsy tissue, healthy adjacent tissue, and serum. All tissue aliquots derived from the same tissue are assigned the same six-digit number. This six-digit specimen-specific identification number is shown on the bar-code with which the biologist labels each container and slide.

A Surgical Pathology Requisition Form is computer generated by the Surgery Department and accompanies the specimen when it is delivered to the Pathology Laboratory. The information includes: Hospital patient identification number, surgeon's name, patient's name and age, date of surgery, and site of specimen. In addition, Surgical Pathology personnel write the Surgical Pathology identification number on the requisition form, and the surgical pathologist measures the tumor before it is divided, indicating the size of the tumor in the report. The BTSR biologist records the repository specimen-specific identification number on the requisition form, makes a copy of this form in the Pathology Department, and takes it to the BTSR along with the specimens. These data is entered into the BTSR database.

The following tests are routinely carried out on all malignant breast biopsy samples at KUMC (see protocol, p. 12):

(1) A complete surgical pathology analysis, including size, tumor characteristics, histological type and grade, etc.
(2) Estrogen and progesterone receptor analysis.
(3) Immunostaining for p53 and HER-2/neu.
(4) Ploidy analysis by flow cytometry or image analysis.

BTSR personnel can retrieve the results of all these tests as soon as they are available and enter the information into the BTSR database, as described below in Cataloging and Storage. Results from test (2) are obtained from the Clinical Laboratory and from test (4) from the Flow Cytometry Laboratory, while the others are obtained from the Surgical Pathology Department.

Serum Samples

Blood samples from both women having breast surgery and women at the KCI High Risk Breast Clinic will be submitted to the BTSR. The procedure described below is followed for each group of women.

Three days before a patient is scheduled to have breast surgery, she is required to go to the Outpatient Laboratory to have her blood drawn for various presurgical tests. It is the BTSR biologist's responsibility to secure the schedule of these visits in advance from the surgeons' scheduling nurse and to advise the Outpatient Laboratory to draw two extra vials of blood from each of these patients for the BTSR. The BTSR biologist is stationed in the Outpatient Laboratory at the time of each of these appointments to be sure that this extra blood is drawn and to label the blood vials with the proper outpatient laboratory labels, which include the patient's name and hospital patient identification number.

In addition, the BTSR biologist gives the patient consent forms for donating blood to the BTSR, asking the patient to sign these and to complete the Personal Health History questionnaire described in detail below under Storage and Cataloging. After the patient completes the questionnaire, the BTSR biologist writes the six-digit specimen-specific identification number on the upper right-hand corner of the front page of the questionnaire.

Women who are considered at high risk for breast cancer are eligible to participate in the KCI High-Risk Breast Clinic. In general, eligible women include those between 30 and 55 years of age

who have at least one of the following conditions: a first-degree relative who has had breast cancer, or, in herself, precancerous mastopathy or prior node-negative breast cancer in one breast.

The High-Risk Breast Clinic is located at the KU Cancer Center Comprehensive Outpatient Diagnostic and Treatment Center. During each patient's first visit to the clinic, blood is drawn for various medical tests. The BTSR biologist is responsible for securing the schedule of these visits in advance and advising the clinic to draw one extra vial of blood from each new patient for the Serum Repository. The identical procedure described above for securing the blood and completed questionnaire from breast surgery patients at the Outpatient Laboratory is also followed for new patients seen at the High-Risk Breast Clinic.

When blood specimens are received at the BTSR, the biologist processes the blood before the specimens are cataloged and stored in the freezer. After spinning down the reamed whole clotted blood in a refrigerated centrifuge, the vial cap is removed, and, with a sterile pipette, the sera is divided into 1.5-ml aliquots in polypropylene containers. Each container is then labeled with the proper bar-code label and snap-frozen. The labels are scanned and the appropriate data entered into the Biopsy Serum Table, the Reduction Mammoplasty Serum Table, or the High Risk Serum Table, depending on the source of the serum.

The specimen-specific number on the bar-code label is assigned to all specimens obtained. When applicable, the six-digit identification number is identical to the number assigned to the tissue specimen for the same patient.

Similar procedures have been developed for the collection of tissues and blood from gynecological patients. The questionnaire used for breast patients has been modified for these patients.

Lymphocyte Samples

The BTSR has the capacity to separate and freeze lymphocytes from peripheral blood when a special request is received. Blood is collected in heparin-containing tubes. A 10-ml tube is necessary. Preferably, within two hours after blood collection, the procedure is detailed on p. 11.

After all serum and lymphocytes samples are separated and labeled, they are stored in a -80°C freezer and the data regarding storage location in the Location Table of the database are recorded. The data include specimen identification number and sample location, including freezer shelf, box and cubicle number. This will allow the BTSR staff to locate all specimens quickly and efficiently.

Storage and Cataloging

When a tissue sample is received at the KCI-BTSR, specimen bar codes are scanned into the Biopsy Table, the Healthy Adjacent Table, or the Reduction Mammoplasty Table of the Repository Database, as appropriate. The unique hospital patient identification number, the date when the specimen was received at the BTSR, the hospital of origin, the total amount of tissue, the surgical date, and all other data shown on the surgical requisition form that accompanies each specimen are recorded and stored in a computer.

All specimen-specific and patient-specific data are maintained in the computerized Repository Database Management system, developed by the Program Database Leader. In the Repository Database, the key fields are the unique specimen number, the hospital patient identification number, and the Surgical Pathology identification number. This combination serves as a unique patient identifier. Any or all of the tables within the database are linked using these three fields.

When a patient questionnaire is delivered to the BTSR, it is labeled with the appropriate bar code. The six-digit identification number matches those of the specimens from the same patient. The questionnaire labels are then scanned and the data entered into the Demographic/Life Style Table. The data requested include demographic, physical, and lifestyle information. Specifically, questions concern age, racial/ethnic background, marital status, religion, weight, height, education, occupation, family income, family history of breast cancer, age at first period, and menopausal, childbirth, lactation and alcohol history. To maintain confidentiality, all questionnaires are filed and locked up in a secure location after the data are entered into the database.

RESULTS

During the past year, the BTSR has substantially increased its inventory of breast tissues and blood products. The total number of breast, endometrial, and ovarian tissue specimens with accompanying blood samples and histology blocks is summarized on p. 13. The BTSR now has in storage 77 specimens of malignant breast tissue, 106 specimens of nonmalignant breast tissue (e.g., fibroadenoma, fibrocystic, etc.), and 24 normal specimens from breast reductions. The BTSR has also begun collecting endometrial and ovarian tissues and blood products from patients undergoing gynecological surgery. Twenty one malignant endometrial and 60 nonmalignant tissue specimens, as well as 17 malignant and 75 nonmalignant ovarian tissue specimens, are currently in storage.

The BTSR has begun collecting plasma in addition to serum and lymphocytes. The collection of these specimens is summarized on p. 14. The total serum and lymphocyte samples for breast tissues have increased, and now 147 and 137 specimens, respectively, are stored and available, as

well as 50 plasma samples. For surgical patients from whom tissue is not available, blood is still collected for the BTSR. However, it is sometimes unavailable due to patient refusal. The total number of blood samples for malignant endometrial cancer is 16 and for non-malignant is 56. For ovarian cancer the total number of blood samples for malignant tumors is 18 and non-malignant is 67.

On pp. 15-17 appears an example of the KCI-BTSR inventory method, indicating the bar coding of samples and sample location in the BTSR freezer.

Proposals have been solicited from KUMC and outside investigators for use of specimens from the BTSR. When received, proposals are reviewed by the KCI-BTSR Committee on Human Tissue Specimen Usage for approval. The following investigators are currently approved for specimen use:

Investigator	**% Estimated Use**	**Research Support**
Jonathan J. Li, Ph.D. (KUMC) Sara Antonia Li, Ph.D. (KUMC)	5%	NCI 5 R01 CA 58030-05
Walter T. Imagawa, Ph.D. (KUMC)	10%	NCI CA 68414-01 USAMRMC BC960604
Gregory Reed, Ph.D. (KUMC)	10%	Dept. of Pharmacology institutional funds
Carol Fabian, M.D. (KUMC)	15%	NCI PO1 CA 72094 NCI UO1 CA 72296 NCI MAA NCI CN 45593-32 NCI N01 CN 65024-32
Dr. Lin Tao (U. Missouri-Kansas City)	10%	NIH KS-34647
Leslie Heckert, Ph.D. (KUMC)	10%	Kansas Cancer Institute institutional funds
Tsuneo Suzuki, M.D., Ph.D. (KUMC)	10%	NIH P01 CA 54474

Eric Elsinghorst, Ph.D. (U. Kansas-Lawrence)	5%	Dept. of Microbiology institutional funds

CONCLUSIONS

The BTSR has been successfully established and its inventory and database are growing. In addition, the collection of tissue specimens from gynecological cancers has expanded the utility of the BTSR to a broader range of investigators. BTSR has received approval from KUMC Human Subjects Committee to collect lung, liver, colon, and testicular tissues, which will also add to the usefulness of the BTSR.

Currently, the BTSR Core Facility is collecting serum, lymphocytes, and normal and tumor breast tissue from patients. The BTSR has extended its collection capabilities to other estrogen-related cancers of the endometrium and ovary. At present, the BTSR has received human subjects approval to collect additional human material from patients at other organ sites, including prostate, colon, liver, testicular, colon, pancreas, and lung. Over the no-cost extension final year of BTSR funding, the focus will be to collect human specimens of endocrine-related cancers. While our main objective remains to collect normal and breast tumor tissues, as well as serum and lymphocytes, from these patients, these other tissues and body fluid materials will be collected at minimal cost to the BTSR and supported by the Departments of Surgery and Pathology. These human tissues have been requested by a number of investigators, and the BTSR is the logical and appropriate resource to store, classify, and record these human materials for research use.

Future Goals

1. Increase collection of breast tissue by outreach to other local hospitals.

2. Continue to call for breast, serum, and lymphocyte proposals from investigators at KUMC (Kansas City), Kansas State University (Basic Cancer Center), and KUMC (Wichita) (Women's Health Institute). The multidisciplinary review committee (p. 10) will continue to review these proposals.

3. Expand collection of human tumor specimens to prostate, colon, thyroid, pancreas, lung, liver, and testicular cancers and corresponding normal tissues, as well as corresponding serum, lymphocyte, and plasma samples. Since a number of KUMC investigators have research interests in cancers at these organ sites, it seems useful to expand cancer research studies at

KUMC by making these tumors available to all interested investigators, for which we have now received human subjects approval.

APPENDIX

KCI-BTSR Committee on Human Tissue Specimen Usage

William Jewell, M.D. - Surgeon (breast), Professor and Director, Kansas Cancer Institute
Jonathan J. Li, Ph.D. - Director, BTSR Core Facility, Professor
Sara Antonia Li, Ph.D. - Hormonal Carcinogenesis Researcher, Kansas Cancer Institute
Patricia Thomas, M.D. - Pathologist, Associate Professor
Carol Fabian, M.D. - Medical Oncologist (breast), Professor
Ossama Tawfik, M.D. - Chief, Surgical Pathology, Assistant Professor

LYMPHOCYTE SEPARATION

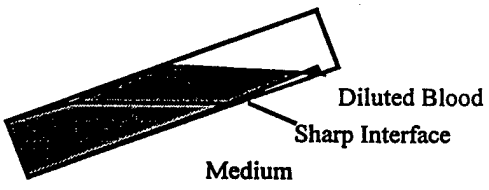
Collect blood in a 10ml heparin or EDTA containing vacutainer tubes.
Preferably, two hours after blood collection, follow this procedure:

1. Pipet 4-5mL Histopaque-1077 into each of four 15mL centrifuge tubes;
2. Draw 3mL Hank's Solution into pipet, then 2-3mL whole blood and place in 15mL centrifuge tube. Add an additional 4mL Hank's Solution to tube, cap and mix by gently inverting tube. Prepare 4 tubes this way;
3. Tilt tube in #1 and add blood mixture so as to create a sharp interface;
4. Centrifuge at 400 x g (approx. 1400 rpm) for 30 minutes at room temperature;
5. After the centrifugation, draw off the opaque interface, being careful not to collect any of the medium below, and transfer to 15mL centrifuge tube containing approximately 5mL Hank's Solution. Mix by gently inverting capped tube, then fill tube with Hank's Solution;
6. Centrifuge at 250 x g (approx. 1000 rpm) for 10 minutes at room temperature;
7. Discard supernatant;
8. Resuspend pellet in 5 mL of Hank's Solution (mix using pipet - aspirations and vortexing);
9. Centrifuge at 250 x g (approx. 1000 rpm) for 10 minutes at room temperature;
10. Discard supernatant;
11. Resuspend pellet in 0.5 mL of Hank's Solution
12. Determine cell count using Crystal Violet (Stain 0.05mL cell solution with 0.45mL Crystal Violet and vortex for 20 sec.); Count number of stained cells in hemocytometer (determine total cells);
13. Put cells in bar code-labelled vial;
14. Freeze at -80°C.

Notes: Steps 5-11 are washing steps only.
For questions contact Dean Merkel in Hematology (pager #7014).
Blood dilution in step #1 useful in preventing loss of white cells in high concentration of red cells.

Materials needed:

15 ml capped centrifuge tubes
Histopaque-1077
Hank's Solution
Crystal Violet
5mL pipets
1mL pipets
200uL micropipet



INVASIVE MAMMARY CARCINOMA PROTOCOL

Tumor size <1cm in greatest diameter:

1) Scrape for ploidy by image analysis, take to image room (Marilyn or Julie) [a]
2) Scrape for flow cytometry (call Bill Justice -3876) [b]
3) Order ER/PR, MIB-1, p53, HER-2/neu, cathepsin immunostains (give req to Julie) [c]

Tumor size 1 to 1.5cm in greatest diameter:

1) Scrape for ploidy by image analysis, take to image room (Marilyn or Julie) [a]
2) Scrape for flow cytometry (call Bill Justice -3876) [b]
3) Send 0.5cm piece of tumor for ER/PR EIA (call metabolic lab) [d]
4) Order MIB-1, p53, HER-2/neu, cathepsin immunostains (give req to Julie) [c]

Tumor size 1.5 to 2.0cm in greatest diameter:

1) Scrape for ploidy by image analysis, take to image room (Marilyn or Julie) [a]
2) Send 0.5cm piece of tumor for ER/PR EIA (call metabolic lab) [d]
3) Place a 0.5cm piece of tumor into RPMI for flow cytometry (call Bill Justice -3876) [e]
4) Order MIB-1, p53, HER-2/neu, cathepsin immunostains (give req to Julie) [c]

Tumor size >2.0cm in greatest diameter:

1) Scrape for ploidy by image analysis, take to image room (Marilyn or Julie) [a]
2) Send 0.5cm piece of tumor for ER/PR EIA (call metabolic lab) [d]
3) Place a 0.5cm piece of tumor into RPMI for flow cytometry (call Bill Justice -3876) [e]
4) Order MIB-1, p53, HER-2/neu, cathepsin immunostains (give req to Julie) [c]
5) Submit 0.5cm of tumor to Oncotech (in Oncotech media).
5) Submit at least 0.5cm of tumor to the breast tumor bank (Leslie Hudson).

[a] Scrape for ploidy by image analysis. Scrape tumor with surgical blade and place material in the middle of a superfrost slide; using another superfrost slide, gently smear the material across the slide, and let air dry. Take the slide and a copy of the requistion to the image analysis room. Page Marilyn Davis if you have questions (6098).

[b] Scrape tumor for flow cytometry. Use a small amount of pressure when scraping. After each of 6 scrapes (3/tumor slice) immerse the scalpel blade in RPMI medium and shake the blade to dislodge the cells. Place the sample in the refrigerator with a copy of the requistion, and call Bill Justice (ext 3876).

[c] Order ER/PR, MIB-1, p53, HER-2/neu, and cathepsin immunostains on a paraffin block (block in which the tissue opposite the frozen section is submitted). Do not order on frozen section block unless it is the only block with tumor.

[d] Place a 0.5cm piece of tumor into a labeled plastic bag and freeze immediately in liquid nitrogen. Fill out green requistion requesting "ER/PR". Call metabolic lab (7020) to send out to Roche.

[e] Place a 0.5cm piece of tumor into RPMI for flow cytometry. Call Bill Justice (ext 3876).

Breast Tissue and Serum Repository

Specimen Update 10/05/98

Tissues

	BREAST TISSUE		
	Malignant	**Non-Malignant**	**Normal**
Total Samples	**77**	**106**	**24**
Blood Samples*	**49**	**35**	**1**
Histology Blocks	**49**	**65**	**17**
Complete Sets	**27**	**25**	**1**

*Blood not obtained due to patient decline to consent.

	ENDOMETRIAL TISSUE	
	Malignant	**Non-Malignant**
Total Samples	**21**	**60**
Blood Samples	**15**	**54**
Histology Blocks	**17**	**31**
Complete Sets	**12**	**29**

	OVARIAN TISSUE	
	Malignant	**Non-Malignant**
Total Samples	**17**	**75**
Blood Samples	**16**	**67**
Histology Blocks	**11**	**50**
Complete Sets	**11**	**49**

Blood Products

	Breast		
	Total Samples	Malignant	Non-Malignant
Serum Samples	147	96	49
Lymphocyte Samples	137	87	47
Plasma Samples	50	33	17

	Endometrium		
	Total Samples	Malignant	Non-Malignant
Serum Samples	69	16	56
Lymphocyte Samples	67	16	54
Plasma Samples	21	8	14

	Ovary		
	Total Samples	Malignant	Non-Malignant
Serum Samples	82	18	67
Lymphocyte Samples	79	18	64
Plasma Samples	30	8	22

EXAMPLE OF BREAST TISSUE INVENTORY

Location	Bar Code #	Pathology File	Patient's Age	Sample Source
1A3.24	000224	S96-09086		Breast tissue, "right breast mass", biopsy:
1A3.25	000230	S96-09297	39	Breast tissue, "left breast mass", biopsy:
1A3.26	000230	S96-09297	39	Breast tissue, "left breast mass", biopsy:
1A3.27	000231	S96-09309	51	Breast tissue, "right breast mass", biopsy:
1A3.27	000231	S96-09309	51	Breast tissue, "right breast mass", biopsy:
1A3.27	000231	S96-09309	51	Breast tissue, "right breast mass", biopsy:
1A3.27	000231	S96-09309	51	Breast tissue, "right breast mass", biopsy:
1A3.28	000292	S97-03243	65	Breast tissue, "superior margin", biopsy:
1A3.28	000292	S97-03243	65	Breast tissue, "superior margin", biopsy:
1A3.33	000250	S97-00072		
1A3.41	000248	S97-00160	64	
1A3.42	000261	S97-00839	42	Breast tissue, "right breast mass":
1A3.6	000196	S97-00509		
1A3.8	000198	S96-08250	36	Breast tissue, "left", breast mass", excision:
1A3.9	000168	S96-01548		
1A4.10	000371	S97-09360		
1A4.11	000187	S97-08334		
1A4.12	000346	S97-07033		Skin and breast tissue, "right breast tissue", reduction mammoplasty:
1A4.13	000355	S97-08227	24	Breast tissue, "breast margin, medial", excision:
1A4.14	000354	S97-08241		Breast tissue, "left breast mass biopsy":
1A4.15	000361	S97-08815	20	Breast tissue, "left breast mass" (left excisional breast biopsy):
1A4.17	000370	S97-09209		
1A4.18	000370	S97-09209		
1A4.19	000345	S97-06910		
1A4.20	000362	S97-08932	43	Breast tissue, "left breast mass", biopsy:
1A4.21	000360	S97-08704	50	Breast tissue and skin, "right breast", (biopsy):
1A4.21	000360	S97-08704	50	Breast tissue and skin, "right breast", (biopsy):
1A4.22	000380	S98-00685	57	
1A4.23	000382	S98-00883		
1A4.24	000382	S98-00883		
1A4.25	000309	S97-04256		Breast tissue, "right breast mass", biopsy:
1A4.26	000318	S97-04423		Breast tissue, "right breast mass", biopsy:
1A4.27	000323	S97-04456		Breast tissue, "left breast", (biopsy):
1A4.28	000311	S97-04455		
1A4.29	000311	S97-04455		
1A4.9	000295	S97-03366	39	Breast tissue, "right", simple mastectomy:
1A4.9	000295	S97-03366	39	Breast tissue, "right", simple mastectomy:
1B1.1	100011	S95-05157	30	Breast tissue, skin and lymph nodes, "right breast", modified radical
1B1.2	100011	S95-05157	30	Breast tissue, skin and lymph nodes, "right breast", modified radical

EXAMPLE OF BREAST SERUM INVENTORY

Location	Bar Code #	Pathology File	Patient's Age	Sample Source
1C4.80	000207	S96-08502	57	Breast and fibroadipose tissue, "right simple mastectomy", resection:
1C4.81	000178	S96-08799	57	Breast tissue, "superior margin":
1C4.9	000056	S96-01447	31	Fibroadipose and breast tissue, "left breast mass", biopsy:
1C5.1	000178	S96-08799	57	Breast tissue, "superior margin":
1C5.10	000218	S96-08807	57	Breast tissue, "#2 right breast mass, superior lateral", biopsy:
1C5.11	000220	S96-02960	68	
1C5.12	000220	S96-02960	68	
1C5.13	000220	S96-02960	68	
1C5.14	000220	S96-02960	68	
1C5.2	000178	S96-08799	57	Breast tissue, "superior margin":
1C5.22	000117	S96-05407	69	Breast tissue, "right breast", simple mastectomy:
1C5.23	000117	S96-05407	69	Breast tissue, "right breast", simple mastectomy:
1C5.24	000117	S96-05407	69	Breast tissue, "right breast", simple mastectomy:
1C5.25	000117	S96-05407	69	Breast tissue, "right breast", simple mastectomy:
1C5.26	000169	S96-09078	41	Breast tissue, "right" biopsy:
1C5.27	000169	S96-09078	41	Breast tissue, "right" biopsy:
1C5.28	000169	S96-09078	41	Breast tissue, "right" biopsy:
1C5.29	000132	S96-07196	46	Breast tissue, "left breast mass", biopsy:
1C5.30	000132	S96-07196	46	Breast tissue, "left breast mass", biopsy:
1C5.31	000132	S96-07196	46	Breast tissue, "left breast mass", biopsy:
1C5.32	000132	S96-07196	46	Breast tissue, "left breast mass", biopsy:
1C5.33	000230	S96-09297	39	Breast tissue, "left breast mass", biopsy:
1C5.34	000230	S96-09297	39	Breast tissue, "left breast mass", biopsy:
1C5.35	000230	S96-09297	39	Breast tissue, "left breast mass", biopsy:
1C5.36	000233	S96-02950	58	
1C5.37	000233	S96-02950	58	
1C5.38	000233	S96-02950	58	
1C5.39	000233	S96-02950	58	
1C5.40	000234	S96-09230	57	Breast tissue, "right breast mass":
1C5.41	000234	S96-09230	57	Breast tissue, "right breast mass":
1C5.42	000234	S96-09230	57	Breast tissue, "right breast mass":
1C5.43	000234	S96-09230	57	Breast tissue, "right breast mass":
1C5.44	000235	S96-09786		
1C5.45	000235	S96-09786		
1C5.46	000235	S96-09786		
1C5.47	000133	S96-09668		Breast tissue and skin, "left breast", mastectomy:
1C5.48	000133	S96-09668		Breast tissue and skin, "left breast", mastectomy:
1C5.49	000133	S96-09668		Breast tissue and skin, "left breast", mastectomy:
1C5.50	000236	S96-09464	71	

EXAMPLE OF BREAST LYMPHOCYTES INVENTORY

Bar Code	Date of Procedure	Age of Patient	# Vials	Sample Location	Sample Class
100014	7/12/95	60	1	1C1.31, 40	Breast Cancer
100016	8/11/95	39	1	1C1.44	Fibrocystic
100017	8/14/95	68	1	1C1.45	Breast Cancer
100019	8/16/95	42	1	1C1.47	Breast Cancer
100020	8/16/95	52	1	1C1.46	Breast Cancer
000022	8/9/95	65	1	1C1.60	Fibrocystic
100022	9/8/95	47	1	1C1.59	Breast Cancer
000001	9/6/95	45	1	1C1.64	Fibrocystic
000002	9/8/95	51	1	1C1.68	Fibrocystic
000003	9/8/95	71	1	1C1.69	Breast Cancer
000004	9/1/95	60	1	1C2.42	Breast Cancer
000005	9/13/95	46	1	1C1.73	Breast Cancer
000006	9/13/95	70	1	1C1.74	Breast Cancer
000010	9/22/95	52	1	1C2.1	Fibrocystic
000011	9/25/95	60	1	1C2.2	Breast Cancer
000012	10/2/95	64	1	1C2.6	Fibrocystic
000013	10/18/95	77	1	1C2.10	Fibrocystic
000015	11/8/95	44	1	1C2.14	Breast Cancer
000016	11/8/95	42	1	1C2.15	Fibrocystic
000017	10/24/95	43	1	1C2.27	Breast Cancer
000018	11/21/95	42	1	1C2.47	Breast Cancer
000019	11/27/95	52	1	1C2.28	Breast Cancer
000020	11/17/95	44	1	1C2.29	Fibrocystic
000021	11/17/95	53	1	1C2.30	Fibrocystic
000023	11/21/95	31	1	1C2.38	Breast Cancer
000025	12/6/95	49	1	1C2.48	*Breast Cancer
000026	12/6/95	59	1	1C2.52	*Breast Cancer
000027	12/8/95	33	1	1C2.56	Fibrocystic
000028	11/22/95	76	1	1C2.81	Breast Cancer
000029	12/18/95	59	1	1C2.64	Breast Cancer
000030	12/20/95	22	1	1C2.60	Fibrocystic
000031	12/20/95	58	1	1C2.65	Breast Cancer
000032	12/29/95	55	1	1C3.10	Breast Cancer
000033	9/22/95	36	1	1C3.1	Breast Cancer
000034	1/10/96	72	1	1C3.2	Breast Cancer
000035	12/27/95	46	1	1C3.6	Breast Cancer
000037	1/22/96	65	1	2C1.1	Endometrial Cancer
000038	1/24/96	42	1	2C1.4	Ovarian Cancer
000039	1/26/96	44	1	1C3.21	*Breast Cancer
000040	1/29/96	47	1	1C3.25	Breast Cancer
000041	11/29/95	42	1	1C3.64	Fibrocystic
000042	1/30/96	42	1	2C1.8	Endometritis, adenomyosis
000043	1/30/96	34	1	2C1.12	Cervical Cancer
000044	1/31/96	46	1	2C1.16	Post-menopausal bleeding
000045	2/6/96	28	1	2C1.20	(squamous cell cancer of cx)
000046	2/7/96	54	2	2C1.23,61	non-malignant endometrium
000047	2/8/96	11	1	2C1.27	malignant ovary

EXAMPLE OF GYNECOLOGIC INVENTORY

Bar Code	Date of Procedure	Age of Patient	# Vials	Sample Location
000037	1/22/96	65	2	2A1.1, 2B1.1 malignant endometrium
000038	1/24/96	42	2	2A1.2, 2B1.2 malignant ovary, cervical metastasis in omentum
000042	1/30/96	42	5	2A1.3-6, 2B1.3 non-malignant endometrium
000043	1/30/96	34	1	2A1.7 non-malignant endometrium
000044	1/31/96	46	1	2A1.8 non-malignant endometrium
000045	2/6/96	28	3	2A1.9, 2B1.4-5 malignant cervix, non-malignant right and left ovary
000046	2/7/96	54	4	2A1.10-13 non-malignant endometrium
000047	2/8/96	11	3	2B1.6-8 malignant ovary
000048	2/8/96	53	3	2A1.14-15, 2B1.9 malignant ovary, metastasis in peritoneum, non-malignant endometrium
000050	2/16/96	55	3	2B2.1,2A1.16-17 in situ carcinoma endometrium, non-malignant ovary
000051	2/16/96	37	2	2B2.2-3 non-malignant ovary, non-malignant endometrium
000052	2/21/96	49	3	2A1.18-20 non-malignant endometrium, non-malignant ovary
000053	2/27/96	72	2	*2A1.21, 2B2.4 non-malignant endometrium
000054	2/27/96	62	2	*2A1.22-23 non-malignant ovary
000061	3/12/96	37	1	*2A1.24 non-malignant endometrium
000065	3/20/96	33	1	2A1.25 non-malignant fallopian tube
000067	3/25/96	35	3	2A1.26-28 non-malignant endometrium, right and left ovary
000069	3/26/96	53	2	*2A1.37-38 malignant peritoneal tumor nodules (metastatic ovarian cancer)
000071	4/2/96	80	3	2B2.5-7 endometrium
000072	4/2/96	43	4	2A1.39-41, 2B2.8-9 non-malignant endometrium, malignant and non-malignant ovary
000075	4/16/96	58	3	2A1.42-44 malignant endometrium, non-malignant ovary
000079	4/22/96	68	4	2A1.29, 2A1.45-47 non-malignant endometrium and ovary, malignant endometrium
000087	5/6/96	41	4	2A1.30-33 non-malignant endometrium, ovary
000088	5/7/96	37	2	2A1.48-49 ovary
000089	5/8/96	70	2	*2B3.1-2 malignant ovary
000090	5/14/96	36	1	2A1.50 non-malignant endometrium
000097	6/5/96	32	1	2A1.34 non-malignant cervix
000098	6/5/96	30	2	2A1.35-36 non-malignant other
000100	6/18/96	45	6	2A2.4-9 malignant endometrium, non-malignant endometrium, ovary, lymph node
000101	6/19/96	65	1	2A2.10 non-malignant ovary
000103	7/2/96	40	6	2A1.78-81, 2A2.1-2 malignant cervix, non-malignant endometrium, ovary, lymph node
000106	6/24/96	70	4	2A1.58-61 malignant and non-malignant endometrium
000107	6/26/96	54	2	2A1.62-63 non-malignant ovary
000108	7/5/96	69	3	*2A2.11-13 non-malignant ovary and fallopian tube
000109	7/5/96	57	2	2A2.14-15 non-malignant ovary
000110	7/9/96	56	4	2A2.16-19 non-malignant endometrium, ovary, lymph node